

§ 74.735 Power limitations.

(a) The maximum peak effective radiated power (ERP) of an analog low power TV, TV translator, or TV booster station shall not exceed:

- (1) 3 kW for VHF channels 2-13; and
- (2) 150 kW for UHF channels 14-69.

(b) The maximum ERP of a digital low power TV, TV translator, or TV booster station (average power) shall not exceed:

- (1) 300 watts for VHF channels 2-13; and
- (2) 15 kW for UHF channels 14-69.

(c) The limits in paragraphs (a) and (b) apply separately to the effective radiated powers that may be obtained by the use of horizontally or vertically polarized transmitting antennas, providing the applicable provisions of §§ 74.705, 74.706, 74.707 and 74.709 are met. For either omnidirectional or directional antennas, where the ERP values of the vertically and horizontally polarized components are not of equal strength, the ERP limits shall apply to the polarization with the larger ERP. Applications proposing the use of directional antenna systems must be accompanied by the following:

(1) Complete description of the proposed antenna system, including the manufacturer and model number of the proposed directional antenna. It is *not* acceptable to label the antenna with only a generic term such as "Yagi" or "Dipole". A specific model number must be provided. In the case of individually designed antennas with no model number, or in the case of a composite antenna composed of two or more individual antennas, the antenna should be described as a "custom" or "composite" antenna, as appropriate. A full description of the design of the antenna should also be submitted.

(2) Relative field horizontal plane pattern (horizontal polarization only) of the proposed directional antenna. A value of 1.0 should be used for the maximum radiation. The plot of the pattern should be oriented so that 0° corresponds to the maximum radiation of the directional antenna or, alternatively in the case of a symmetrical pattern, to the line of symmetry. The 0° on the plot should be referenced to the actual azimuth with respect to true North.

(3) A tabulation of the relative field pattern required in paragraph (c)(2), of this section. The tabulation should use the same zero degree reference as the plotted pattern, and be tabulated at least every 10°. In addition, tabulated values of all maximas and minimas, with their corresponding azimuths, should be submitted.

(4) All horizontal plane patterns must be plotted to the largest scale possible on unglazed letter-size polar coordinate paper (main engraving approximately 18 cm × 25 cm (7 inches × 10 inches)) using only scale divisions and subdivisions of 1, 2, 2.5 or 5 times 10^{nth}. Values of field strength on any pattern less than 10% of the maximum field strength plotted on that pattern must be shown on an enlarged scale.

(5) The horizontal plane patterns that are required are the patterns for the complete directional antenna system. In the case of a composite antenna composed of two or more individual antennas, this means that the patterns for the composite antenna composed of two or more individual antennas, not the patterns for each of the individual antennas, must be submitted.

[30 FR 8847, July 14, 1965, as amended at 41 FR 28267, July 9, 1976; 47 FR 21500, May 18, 1982; 48 FR 21487, May 12, 1983; 52 FR 7423, Mar. 11, 1987; 52 FR 31404, Aug. 20, 1987; 58 FR 44951, Aug. 25, 1993; 62 FR 26722, May 14, 1997]

§ 74.736 Emissions and bandwidth.

(a) The license of a low power TV, TV translator, or TV booster station authorizes the transmission of the visual signal by amplitude modulation (A5) and the accompanying aural signal by frequency modulation (F3).

(b) Standard width television channels will be assigned and the transmitting apparatus shall be operated so as to limit spurious emissions to the lowest practicable value. Any emissions including intermodulation products and radio frequency harmonics which are not essential for the transmission of the desired picture and sound information shall be considered to be spurious emissions.

(c) Any emissions appearing on frequencies more than 3 MHz above or

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below the upper and lower edges, respectively, of the assigned channel shall be attenuated no less than:

- (1) 30 dB for transmitters rated at no more than 1 watt power output.
- (2) 50 dB for transmitters rated at more than 1 watt power output.
- (3) 60 dB for transmitters rated at more than 100 watts power output.
- (d) Greater attenuation than that specified in paragraph (c) of this section may be required if interference results from emissions outside the assigned channel.

[28 FR 13722, Dec. 14, 1963, as amended at 33 FR 8677, June 13, 1968; 36 FR 19592, Oct. 8, 1971; 47 FR 21500, May 18, 1982; 52 FR 31404, Aug. 20, 1987]

§ 74.737 Antenna location.

(a) An applicant for a new low power TV, TV translator, or TV booster station or for a change in the facilities of an authorized station shall endeavor to select a site that will provide a line-of-sight transmission path to the entire area intended to be served and at which there is available a suitable signal from the primary station, if any, that will be retransmitted.

(b) The transmitting antenna should be placed above growing vegetation and trees lying in the direction of the area intended to be served, to minimize the possibility of signal absorption by foliage.

(c) A site within 8 kilometers of the area intended to be served is to be preferred if the conditions in paragraph (a) of this section can be met.

(d) Consideration should be given to the accessibility of the site at all seasons of the year and to the availability of facilities for the maintenance and operation of the transmitting equipment.

(e) The transmitting antenna should be located as near as is practical to the transmitter to avoid the use of long transmission lines and the associated power losses.

(f) Consideration should be given to the existence of strong radio frequency fields from other transmitters at the site of the transmitting equipment and the possibility that such fields may result in the retransmissions of signals originating on frequencies other than

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that of the primary station being re-broadcast.

[47 FR 21500, May 18, 1982, as amended at 52 FR 31404, Aug. 20, 1987]

§ 74.750 Transmission system facilities.

(a) A low power TV, TV translator, or TV booster station shall operate with a transmitter that is either certificated for licensing under the provisions of this subpart or type notified for use under part 73 of this chapter.

(b) Transmitting antennas, antennas used to receive the signals to be re-broadcast, and transmission lines are not certificated by the FCC. External preamplifiers also may be used provided that they do not cause improper operation of the transmitting equipment, and use of such preamplifiers is not necessary to meet the provisions of paragraph (c) of this section.

(c) The following requirements must be met before low power TV and TV translator transmitters will be certificated by the FCC:

(1) The equipment shall be so designed that the electrical characteristics of a standard television signal introduced into the input terminals will be maintained at the output. The overall response of the apparatus within its assigned channel, when operating at its rated power output and measured at the output terminals, shall provide a smooth curve, varying within limits separated by no more than 4 dB: *Provided, however,* That means may be provided to reduce the amplitude of the aural carrier below those limits, if necessary to prevent intermodulation which would mar the quality of the retransmitted picture or result in emissions outside of the assigned channel.

(2) Radio frequency harmonics of the visual and aural carriers, measured at the output terminals of the transmitter, shall be attenuated no less than 60 dB below the peak visual output power within the assigned channel. All other emissions appearing on frequencies more than 3 megacycles above or below the upper and lower edges, respectively, of the assigned channel shall be attenuated no less than:

- (i) 30 dB for transmitters rated at no more than 1 watt power output.
- (ii) 50 dB for transmitters rated at more than 1 watt power output.